

NOTES BY THE EDITOR.

CHINOOKS VERSUS THE KURO SIRO.

Our esteemed voluntary observer, Mr. M. Messner, of Utica, Mont., mentions in a recent letter the fact that "the opinion is prevalent in this country that chinooks are caused by currents of air from the Japan current," and in order to controvert this error he desires to republish an article that lately appeared in the MONTHLY WEATHER REVIEW.

The error alluded to by Mr. Messner is an illustration of the ease with which our schools and newspapers disseminate and the public imbibe errors regarding atmospheric phenomena. The time has long since passed when everyone believed that the baser metals, such as lead, mercury, and silver, could be changed into gold. Chemistry has for a hundred years been taught so clearly and so widely that although some mistakes are still made, yet the grosser errors that belong to a crude stage of civilization have entirely disappeared. Those who believe in the transmutation of metals, or in perpetual motion, or in squaring the circle, are now recognized as men who refuse to be guided by the knowledge that is accessible in every school text-book. A treatise on meteorology that would begin by demolishing the thousand and one errors that we have inherited from our ancestors, or that have been invented by the modern demand for ingenious explanations, is perhaps the first step that is needed in the reformation of the popular conception of this branch of science.

It would require a learned antiquarian to collect all the popular meteorological errors that have been started from time to time and that are still afloat in some part of the world, like derelicts on the ocean. It is not so very long since Professor Loomis demonstrated the error of those who maintained that there is a specific equinoctial gale or storm that reappears every year. We are even now just emerging from the influence of a century of delusion relative to the idea that forests produce rain and that agricultural cultivation of the soil produces droughts. We have just, within twenty-five or thirty years, obtained a clear conception of the warm, dry, descending winds when, lo! a new error with regard to them appears. A century ago it was rational to inquire whether the Gulf Stream had any influence on our own or European weather, but now we know that if it has any, it is at least inappreciable in comparison with the general influence of the ocean. Similarly in the case of the Japanese current, or Kuro Siro, which is to the Pacific what the Gulf Stream is to the Atlantic, we have now from Montana a new query as to its action in forming chinook winds. A first glance at the map of the world must arouse in the mind of a rational person grave doubts as to whether the chinooks of Montana come from the Japan stream. This latter is fully 6,000 miles distant. The winds that blow over it form a part of the general circulation of the Pacific Ocean; eventually, they get into a whirl around the great depression in the North Pacific Ocean in the neighborhood of the Aleutian Islands. The rain and fog in this region and on the coast of Alaska, British Columbia, Washington, and Oregon are demonstrably due to the evaporation from the Pacific Ocean as a whole and to the fact that the winds are rising up over the Rocky Mountain Region. The Japan current, properly so-called, is due to this circulation of the winds; the winds are not due to it. Each square mile of the Pacific Ocean has a slight influence on this circulation, but the Japan current does not occupy one per cent of this area. The mere fact that the westerly winds are rainy and cloudy on the Pacific Coast but are warm and dry in Montana suffices to show that they have undergone a change in passing over the mountains and

that the main features of these winds are due to something that takes place in the Rocky Mountain Region and not on the coast of Japan.

The map of the winds over the North Pacific in the winter months shows a powerful and prevailing cold, northerly current flowing from the interior of Asia over Japan south and southeastward, most of which then turns to the southwest over the Phillipine Islands into the Indian Ocean. What little passes over northern Japan and eastward to the middle of the Pacific Ocean then turns northward and returns in its circulation around the Aleutian area of low pressure. Not one part in ten thousand ever reaches Montana. On the other hand, the southwest wind of our Pacific Coast can easily be traced a little farther southwest and then southerly to the Hawaiian Islands, being a part of the circulation around an area of high pressure whose center lies a little southwest of San Francisco and northeast of Hawaii. These two systems of winds circulating about the highs and lows on the Pacific represent only what is going on at the very bottom of the atmosphere. If we go up 15,000 or 20,000 feet into the region of the upper cirrus clouds that float over all this part of the globe, we shall find them all moving from the west, or between northwest and southwest. It seems likely that a slow process of interchange takes place between this highest stratum and the lowest stratum. In this process the air within the areas of high pressure has a general descending tendency, that is to say, it is drawn from the upper level or that of the cirrus clouds, while the air within the areas of low pressure has an ascending tendency, and eventually reaches the level of the cirrus clouds. But these general tendencies upward and downward require considerable time, it may be days or weeks or months, according to circumstances, to complete an entire circulation for any given particle of air; in the course of this long period any given cubic foot of air may be dispersed in all directions, some of its particles going northward and some southward, some ascending and some descending until it is so dispersed that it would be impossible to trace the air that forms a chinook in Montana backward to any given region 500 miles away.

NOTES FROM THE REPORTS OF STATE SECTIONS.

A few of the reports from the State Sections, such as those from California, Washington, Oregon, North Dakota, and New York, are not published in full early enough to be quoted in these notes, which are, therefore, culled from the remaining States only.

COLORADO.

Mr. Brandenburg's special reports of snowfall enable him to state that—

March has been similar to the winter months as regards deficient snowfall, and there has been no increase of consequence in the amount of snow stored in the mountains. None of the reports indicate anything near the average March snowfall, though in a few localities the fall has been somewhat greater than during the winter months.

IOWA.

Among the numerous interesting notes published by Dr. Chappel is a quotation relative to the earth's shadow as seen in the atmosphere, which suggests the following note by the present Editor. Shortly after sunset the eastern horizon is surmounted by a dark, purplish haze; above this is a more or less well-defined pink or reddish flat arch, stretching from northwest to southeast, or from north-northwest to south-southeast, and above that a whitish haze shading off into the blue sky above. As we survey the sky above and west of this